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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,483	01/11/2002	Patrice Brachat	15675P395	9897

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EXAMINER
PATEL, PARESH H

ART UNIT	PAPER NUMBER
2829	

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/044,483	BOYLE ET AL.	
	Examiner	Art Unit	
	Paresh Patel	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-7 and 9-21* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 6/10/02 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election of species of figure 5 (claims 1-7 and 9-21) in Paper filed on 10/30/2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Allowable Subject Matter

2. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

3. The following is a statement of reasons for the indication of allowable subject matter: prior art does not teach or suggest a probe according to claim 1, wherein the reflector cone has a profiled surface defined by a generator line that is concave towards the ground plane.

4. Balkney et al. (US 4608572) discloses broad-band antenna structure (see fig. 10) with reflector cone (12) with it's profiled surface defined by a generator line that is straight instead of concave as claimed in claim 5.

Specification

5. The disclosure is objected to because of the following informalities: in the abstract delete "The present invention provides".

Appropriate correction is required.

Claim Rej ctions - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6-7, 9-10 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Fletcher et al. (US 3919710)

Regarding claim 1, Fletcher et al. (hereafter Fletcher) in fig. 1-3 discloses an electromagnetic probe, comprising at least one assembly comprising in combination: a coaxial type connection [22]; a ground plane [16] connected to the outer sheath of the coaxial connection [lines 60-64 of column 2]; a reflector cone [14] placed facing the ground plane [16] and shaped to define impedance that is at least substantially constant along its profile [lines 3-6 of column 3]; and a dielectric medium [inherent to air (not shown) between 16 and 14] interposed at least in part between the reflector cone [14] and the ground plane [16].

Regarding claim 2, Fletcher discloses a probe according to claim 1, further comprising a sleeve [18,20] centered on the ground plane [16] and placed facing the reflector cone [14].

Regarding claim 3, Fletcher discloses a probe according to claim 1, further comprising a rod-shaped element [26] passing through at least part of the reflector cone

[14] and constituting a matching stub extending the central core of the coaxial connection [26 with 22].

Regarding claim 4, Fletcher discloses a probe according to claim 1, wherein the assembly is circularly symmetrical [see fig. 1-3] about a central axis [longitudinal axis passes through center of 25 with 22 (not shown)].

Regarding claim 6, Fletcher discloses a probe according to claim 1, wherein the ground plane is defined by a plate [16].

Regarding claim 7, Fletcher discloses a probe according to claim 6, wherein the ground plane has a surface [top surface of 16] facing the reflector cone [14], which surface converges [see surface of 16 in fig. 2] towards the cone and towards the central axis [in fig. 2].

Regarding claim 9, Fletcher discloses a probe according to claim 7, wherein the converging surface of the ground plane is formed by a generally plane plate [16] having a cylinder projecting from its center [see 16 in fig. 2-3].

Regarding claim 10, Fletcher discloses a probe according to claim 2, wherein the sleeve is stepped [18, 21 and 20].

Regarding claim 14, Fletcher discloses a probe according to claim 1, wherein the ground plane [16] and the sleeve [18, 20] are made out of a single piece [12, lines 42-46 of column 2].

8. Claim 1 is also rejected under 35 U.S.C. 102(b) as being anticipated by Blakney et al. (US 4608572).

Regarding claim 1, Blakney et al. (hereinafter Blakney) discloses an electromagnetic probe, comprising at least one assembly [10] comprising in combination: a coaxial type connection [electrical connection (not shown) for 15 at ground plane]; a ground plane [ground plane of fig. 9] connected to the outer sheath of the coaxial connection [inherent to coaxial assembly and ground plane]; a reflector cone [12 of fig. 10] placed facing the ground plane [14 with 16] and shaped to define impedance that is at least substantially constant along its profile [inherent to coaxial assembly]; and a dielectric medium [13 and/or air] interposed at least in part between the reflector cone and the ground plane.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fletcher et al. (US 3919710) as applied to claim 1 above, and further in view of Blakney et al. (US 4608572).

Regarding claim 11, Fletcher et al. (hereinafter Fletcher) discloses all the elements including the sleeve [18, 20]. Fletcher do not disclose the sleeve is made up of a plurality of cylinders on the same axis, and of decreasing diameter going towards the reflector cone. Blakney et al. (hereinafter Blakney) discloses the sleeve is made up of a

plurality of cylinders [26] on the same axis [18], and of decreasing diameter going towards the reflector cone [lines 36-45 of column 8]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Fletcher to use the sleeve made up of a plurality of cylinders on the same axis as taught by Blakney, to optimize antenna bandwidth and efficiency of the probe so that electrical spacing between the reflector cone and plurality of cylinders of sleeve of the ground plane maintains constant one-quarter wavelength as the antenna frequency vary from highest to the lowest.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fletcher et al. (US 3919710) as applied to claim 1 above, and further in view of Rodal et al. (US 5467095).

Regarding claim 12, Fletcher et al. (hereinafter Fletcher) discloses all the elements including air as dielectric (air between 14 and 12). Fletcher does not disclose at least a portion of the dielectric medium possesses **permittivity greater than 1**. Rodal et al. (hereinafter Rodal) discloses low profile antenna [10] with ground plane [12] and radiating element [14] and the dielectric medium [plastic and other dielectrics, see lines 23-28 of column 6] possesses **permittivity greater than 1** [lines 23-26 of column 4 and 23-28 of column 6]. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the assembly of Fletcher to use the dielectric medium as taught by Rodal, thereby enabling a still further reduction in the size of said assembly (antenna) [lines 23-28 of column 6].

12. Claims 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Fletcher as applied to claim 1 above, and further in view of Aslan (US 6084551).

Regarding claim 17, Fletcher discloses all the elements except for a probe according to claim 1, comprising a plurality of assemblies centered on axes that are not mutually parallel so as to form a multidirectional probe. Aslan discloses multidirectional probe in fig. 1-3 with a plurality of assemblies [16, 18, 20 and/or 28, 30, 32] centered on axes [x, y, z of fig. 6 with 33] that are not mutually parallel [see fig. 6]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the antenna of Fletcher as multidirectional probe taught by Aslan, in order to achieve a quasi-isotropic response from the antenna during measurement of electromagnetic field.

Regarding claim 18, modified probe of Fletcher and Aslan discloses the ground planes [16 of Fletcher with teaching of Aslan] of the various individual assemblies [various 10 now] lie on the outside faces of a polyhedron [orthogonal arrangement of 10 with teaching of Aslan makes polyhedron].

Regarding claim 19, modified probe of Fletcher and Aslan discloses three individual assemblies centered on respective axes O-O [x, y, z at 33 of Aslan fig. 6] that are mutually orthogonal in pairs.

Regarding claim 20, modified probe of Fletcher and Aslan discloses three individual assemblies [10 of Fletcher with teaching of Aslan makes cube structure] lying on faces defining a corner of a cube.

Regarding claim 21, modified probe of Fletcher and Aslan discloses a support polyhedron integrated [modified probe of Fletcher and Aslan] with the ground planes [16 of Fletcher with teaching of Aslan] of the various individual assemblies.

13. Claims 1, 3, 13 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobuchi (JP 02-121505) in view of Fletcher et al. (US 3919710).

Regarding claim 1, Kobuchi discloses an electromagnetic probe, comprising at least one assembly comprising in combination: a coaxial type connection [11]; a ground plane [5'] connected to the outer sheath [6] of the coaxial connection [at 12]; and a dielectric medium [1 and/or 4] interposed at least in part between conductor [2] and the ground plane [5'].

Kobuchi discloses all the elements including a reflector cone [see purpose of Abstract] to be replaced for microstrip antenna [2]. However, Kobuchi does not disclose said reflector cone placed facing the ground plane and shaped to define impedance that is at least substantially constant along its profile; said dielectric medium interposed at least in part between the reflector cone and the ground plane. Fletcher et al. (hereinafter Fletcher) discloses a reflector cone [14] placed facing the ground plane [16] and shaped to define impedance that is at least substantially constant along its profile [lines 3-6 of column 3]; and a dielectric medium [air] interposed at least in part between the reflector cone [14] and the ground plane [16]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the probe of Kobuchi with reflector cone as taught by Fletcher, in order to achieve excellent broad beam

characteristic from the modified antenna (see Fletcher, at lines 20-25 of column 2 and lines 33-39 of column 1).

Regarding claim 3, Kobuchi discloses a probe according to claim 1, further comprising a rod-shaped element [7] and constituting a matching stub extending the central core of the coaxial connection [7 in fig. 6].

Regarding claim 13, Kobuchi discloses a probe according to claim 1, wherein the dielectric medium in the space between the reflector cone and the ground plane, with the exception of a peripheral zone adjacent to the ground plane [1 and/or 4]

Regarding claim 15, Kobuchi discloses a probe according to claim 3, wherein the rod-shaped element constituting a stub is stepped [step of 7 in fig. 6].

Regarding claim 16, Kobuchi discloses a probe according to claim 3, including a dielectric bushing [8 or 15 of 11] surrounding at least a portion of the stub-forming rod-shaped element [7].

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paresh Patel whose telephone number is 571-272-1968 The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-2957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Paresh Patel
Feb. 02, 2004